PROCEDURE

Part a) Run the starter code in both the simulator and on the real board. You should be able to repeat the measurements as demonstrated in the teaching videos of this chapter. The TExaS_Init will initialize the PLL to run at 80 MHz.

Part b) First, change the oscillation rate to 10 Hz, and use the existing debugging dump to prove it is toggling 0.05 seconds on and 0.05 seconds off. You should run this modification both in simulation and on the real board. You will notice that simply dividing the wait counter in half does not result in an exact solution. This is because each time through the loop includes waiting, outputting, and dumping. Dividing the wait counter in half just divides the waiting, without changing the time to output and dump. You only have to make it operate within 10% of 10 Hz. The simulator is not perfect so we will accept ±25% time accuracy in simulation, but will require ±1% time accuracy on the real board.

Part c) Next, add the ability to read the input and toggle the output only when either switch is pressed. The automatic grader in simulation mode should give you some points for meeting the input/output/time specifications. You may have to adjust your delay function so the grader sees it with ±25% of the expected 10 Hz.

Part d) Lastly, add the debugging instrument that dumps the input/output information into the **`Data[]`** array. You should mask the Port F data with 0x13 to select just bits 4, 1, and 0.

During checkout, I will grade your system in both simulation and on the real board. During the simulation grading I will automatically set the inputs, check your outputs and check that the **`Data[]`** array is properly filled.

GRADING IN SIMULATION MODE

DR. RAMESH YERRABALLI: We'll show you how to get your grade for Lab 9

in Simulation.

Go to edX, pick your four-digit number from this page, copy it.

Open Keil.

Make sure you're in Simulation.

Build a project.

Debug it.

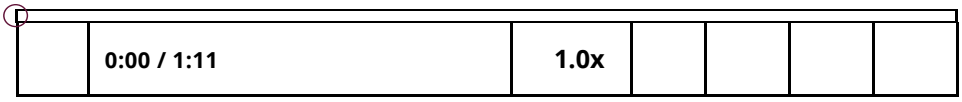
You will see the TExaS Interface pop up.

If it doesn't, go to Peripherals.

Pick it.

Now, paste the four-digit code you got from edX, and you hit the grade button.

But one of the things you could do is look at the details of the test cases



by popping open the window, the command window.

Hit the grade.

It shows you all the details of test cases

Help

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